

Health Problems in the Martin Luther King, Jr., Hospital Service Area

Implications for a Community Medicine Program

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EFFECTIVE HEALTH SERVICES should result in a measurable and significant decrease in existing health problems. A careful assessment of these problems is an important initial step in developing realistic program objectives and provides a basis for evaluating progress.

There are several ways of approaching the measurement of problems, each of which has its peculiar bias. A consideration of mortality rates provides one perspective and morbidity data provides another. Both of these approaches are disease-oriented and do not provide the same insights as a study of the consumer's problems in obtaining access to care.

Simultaneous assessment by several methods increases the reliability of conclusions which are reached, but the consideration of mortality by itself can provide significant clues. This has been recognized since 1662 when John Graunt of London published his "Natural and Political Observations made upon the Bills of Mortality." Considerably more recently, and in this country, Lerner and Anderson made some interesting studies on mortality differentials between high and low-income states in the United States.¹

Of special interest are the studies which compare, in smaller geographical areas, the mortality experience of poverty versus non-poverty populations and of white versus non-white groups. This kind of data is still rather limited. The Chicago Board of Health published a report on health and

medical care in poverty areas of Chicago and showed an increased mortality related to poverty.² Using a more rigorous treatment of the Chicago data, Lerner presented further confirming evidence in a chapter he supplied for *Poverty and Health*.³ Differentials in white and non-white mortality have been studied for Baltimore and Washington, D.C.⁴ and Hunt and Hmyek analyzed the mortality of white and non-white infants in major United States cities.⁵ Other investigators have dealt with infant, prenatal, maternal and childhood mortality in this country.⁶

This communication focuses on the area served by the Los Angeles County-Martin Luther King, Jr. General Hospital and the Charles R. Drew Postgraduate Medical School. Both of these institutions have strong commitment to effective community service and the data here described represent part of that which has been developed to provide a rational basis for establishing program priorities at the medical center. The local data are based largely on 1968 statistics and, therefore, represent the status before these institutions began rendering services.

The analysis is based on several comparisons. Because the King Hospital Service Area is predominantly black, reference is first made to the comparison of mortality rates for the white and the non-white on a national basis. Comparisons are then made with Los Angeles County as a whole and also with the West Valley Health District.

Description of the Study and Comparison Populations

The community served by the medical center is currently a 33-square-mile area located in South Central Los Angeles. Approximately 340,000 peo-

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**TABLE 1.—Age-Adjusted
Death Rates per 100,000
for Selected Causes of
Death, By Race,
United States, 1967**

<i>Cause of Death</i>	<i>Age-Adjusted Death Rates</i>	
	<i>White</i>	<i>Non-White</i>
Heart Disease (400-402) (410-443)	263.1	310.1
Malignant Neoplasms (140-205)	126.6	154.3
Vascular Lesions Affecting Central Nervous System (300-334) ...	65.2	118.8
Accidents (E800-E962)	52.4	73.2
Influenza, Pneumonia (480-493)	18.8	36.4
Diabetes Mellitus (260)	12.7	24.5
Cirrhosis of Liver (581)	12.5	20.7
Nephritis and other Renal Sclerosis (592-594)	3.4	11.8
Tuberculosis (001-019)	2.2	10.1

SOURCE: National Vital Statistics Division: Vital Statistics of the United States, 1967. Vol. 11, Part A. Public Health Service, Washington, U.S. Government Printing Office, 1969.

ple (1970 census) live in this area, more than 82 percent of whom are black. Over 12 percent of the population have Spanish surnames, and the remainder are of other races. It is predominantly a low-income area with high unemployment.

For comparison, we selected the West Valley Health District, one of the 23 health service districts defined by the Los Angeles County Department of Health Services. It is a large, primarily suburban area in the northwestern part of Los Angeles County, with a population of over 550,000 people. More than 98 percent of the population is white. Economically this population is middle-class to upper middle-class. West Valley was not chosen because it is the perfect community; indeed, for some causes of death the district showed higher rates than the county as a whole. However, it is a convenient point of reference against which the King Service Area can measure its own progress toward a standard of health that is achievable within Los Angeles County. Although there are important differences between the two populations, if the King Service Area is indeed making progress, then, regardless of the reasons for the differences, the gap between the two populations should become smaller over the years.

Differences between the study and comparison areas are more than racial. The population served by the medical center is younger than that of West Valley with a median age of 23 years compared with 29 for West Valley. The median annual income (1970) is \$5,950 for the Hospital Service Area and an estimated \$16,000 for the West Valley area. Median annual income for the county as a whole is approximately \$10,970.

White-Nonwhite Differentials in Mortality in the United States

For all the major causes of death in the United States, the rates for the white population are lower than for the non-white population, more than 90

percent of whom are black. The 1967 age-adjusted mortality rates for the leading causes of death are given in Table 1. For vascular lesions of the central nervous system, the rate for the non-white is almost double that of the white (118 to 65 per 100,000). The same is true for influenza and pneumonia, diabetes and cirrhosis of the liver. For tuberculosis, the ratio is more than four to one. The same pattern which one observes in the national data is seen to a greater or lesser extent in predominantly black urban communities. It was, therefore, reasonable to expect that one would find the same kind of problems in the King Hospital Service Area.

Differentials in Mortality Within the Los Angeles County Area

We now show how the mortality rates for the King Hospital Service Area compare with Los Angeles County as a whole and with the West Valley community. Because of the differences in the age composition of the populations, valid comparisons can be made only on age-adjusted rates. All rates are adjusted to the Los Angeles County population and the analyses are based on the 1968 vital statistics obtained from the Los Angeles County Health Department, Division of Health and Statistics. The vital statistics were provided on magnetic tape and were processed on the Univac 1108 Computers at Jet Propulsion Laboratories (California Institute of Technology).

The rates for the King Hospital Service Area conform to what might be expected in a predominantly black population. However, for heart disease—the major cause of death—the rate for the non-black population in the area is much higher than for the black population. It is suspected that a higher mortality in the Mexican-American population can be a major contributing factor since this group forms a significant proportion of the

TABLE 2.—Age-Adjusted Death Rates per 100,000 for Selected Causes of Death—King Hospital Service Area Los Angeles County, and the West Valley Health District, 1968

Cause of Death	Hospital Service Area	L.A. County	West Valley
Heart Disease (400-402) (410-443)	386.93	332.57	279.99
Malignant Neoplasms (140-205)	192.35	157.73	137.73
Vascular Lesions Affecting Central Nervous System (330-334)	132.41	101.91	103.00
Accidents (E800-E962)	75.70	53.00	42.02
Homicide (964-5) (980-99)	55.12	9.38	2.70
Cirrhosis of Liver (581)	42.52	22.55	11.97
Influenza, Pneumonia (480-493)	38.40	22.38	17.26
Early Infant Diseases (760-776)	30.20	20.08	17.70
Diabetes Mellitus (260)	28.10	12.55	8.92
Other Circulatory Diseases (451-468)	16.12	12.13	7.38
Arteriosclerosis (450)	16.07	13.04	10.38

non-black population of the King Hospital Service Area.

Comparing the King Hospital Service Area with Los Angeles County, the mortality rates for the major causes of death bear a similar relationship to the rates for the non-white and white nationally. For example, deaths from diabetes and cirrhosis of the liver occur at about twice the rate. Homicide, which does not appear among the ten leading causes of death nationally, appears in this comparison where the causes of death are ranked in order of their rates in the King Hospital Service Area. Homicide occurs in the King Hospital Service Area with six times the rate of occurrence in Los Angeles County, making it one of the ten leading causes of death. Heart disease, cancer and stroke are, as nationally, the three major killers, but death from stroke occurs at a 30 percent higher rate in the King Hospital Service Area than in Los Angeles County. Nationally the rate for the non-white is about 80 percent higher than for the white.

Comparing the King Hospital Service Area with the West Valley community, the gap is even wider. Rates for heart disease are 35 percent higher, cancer 40 percent and stroke 35 percent. Deaths from accidents occur at almost twice the rate, cirrhosis of the liver almost four times and homicide at about twenty times the rate in the West Valley community. (See Table 2.)

If one applies to the population of the King Hospital Service Area the same age- and sex-specific death rates that exist in the West Valley population, then one can calculate an "expected number of deaths." For many conditions, the number of deaths which actually occurred in the King Hospital Service Area exceeds the number which would have occurred at West Valley rates. The difference between the number that would have occurred at West Valley rates and the number that actually occurred, we call "excess deaths."

TABLE 3.—Excess Deaths* in King Hospital Service Area Compared with West Valley Health District—Selected Causes of Death, 1968

Cause of Death	Number Excess Deaths
Heart Disease (400-402) (410-443)	363
Malignant Neoplasms (140-205)	185
Homicide (964-5) (980-99)	178
Cirrhosis of Liver (581)	121
Accidents (E800-E962)	114
Vascular Lesions of Central Nervous System (330-334)	100
Influenza, Pneumonia (480-493)	72
Diabetes Mellitus (260)	65
Early Infant Diseases (760-776)	42
Nephritis (592-594)	32
TOTAL	1,272

*See text for definition.

The excess deaths for the year 1968 are shown, by cause, for the ten conditions which contributed most to the excess. These figures are shown in Table 3.

For these conditions alone, there are almost 1,300 excess deaths a year in the King Hospital Service Area. The savings of these lives provide a challenge to the new medical center.

Heart disease, cancer and homicide are the leaders in this category. Cirrhosis of the liver, accidents and stroke follow in order of importance. Based on national data, it would appear that hypertensive heart disease is the major contributor to excess deaths caused by heart disease. Among the cancer sites, cancer of the stomach, uterus, prostate, pharynx and liver contribute most to the excess. Among accidents, the excess is due largely to home accidents rather than vehicular accidents. Prematurity in the neonatal period and respiratory and gastrointestinal diseases in the postneonatal period are major contributors to the excess in infant deaths.

The number of excess deaths does not ade-

TABLE 4.—Person-Years Lost from Selected Causes of Death—King Hospital Service Area Compared to West Valley Health District, 1968

Cause of Death	Person-Years Lost
Homicides (964-965) (980-999)	6,436
Accidents (E800-E962)	5,630
Heart Disease (400-402) (410-443)	5,149
Early Infant Diseases (760-776)	3,931
Malignant Neoplasms (140-205)	3,775
Influenza, Pneumonia (480-493)	2,650
Cirrhosis of Liver (581)	2,607
Vascular Lesions Affecting Central Nervous System (330-334)	1,512
Diabetes Mellitus (260)	902
Other Chronic Respiratory (525-526) (501-502)	868

quately indicate the priorities of attention, since the prevention of deaths at a late stage in life does not contribute as much to lengthening of life expectancy as the prevention of the same number of deaths occurring at an earlier stage in life. Therefore, we prefer to use the number of person-years lost in judging the relative importance of health problems. This statistic is derived by computing the number of excess deaths from a specific cause at each age group and multiplying it by the life expectancy at that age, then totaling over all age groups for that specific cause. Using the number of person-years lost, we obtain a different ranking of conditions. The number of person-years lost by the major causes of excess deaths are ranked and given in Table 4. This table tends to bring into sharper focus the importance of preventing excess deaths at the earliest possible age. The relationship of the major causes of excess deaths at different ages is shown in Chart 1. From these diagrams it is clear that homicide and accidents are problems of younger age groups and each death contributes many person-years lost, whereas excess deaths from cancer and stroke are largely a problem of the elderly and each death contributes far less to the loss of person-years.

The order varies from Table 3 in that deaths from homicide and accidents are shown to contribute more to years of life lost, and deaths in infancy have risen in importance as a priority on which one should focus.

Program Implications

Although mortality data do not in themselves provide a complete picture, the above findings have significant implications for program planning. Health planners often place priority on the basis of a combination of factors including se-

verity, scope, technical feasibility and cost. If a condition is severe enough to be a leading cause of excess deaths, then it should merit the attention of those who provide health care for that population. On the other hand, we do not always have

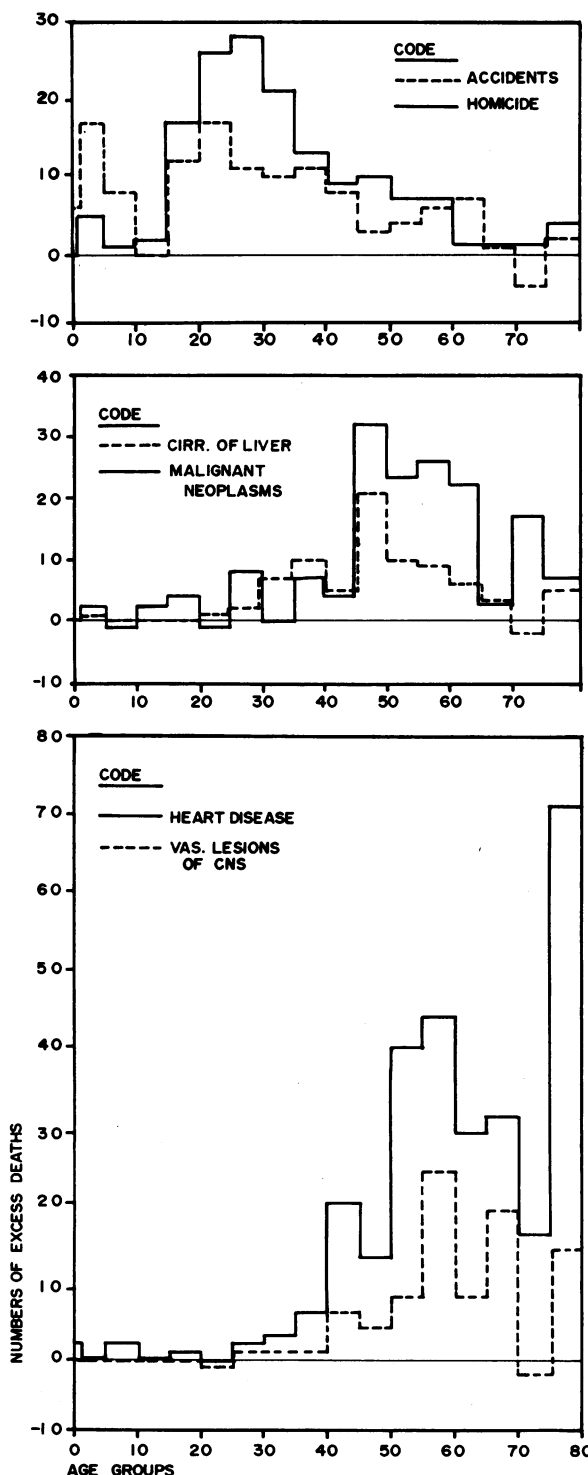


Chart 1.—Excess deaths 1968 King Hospital Service Area/West Valley Health District.

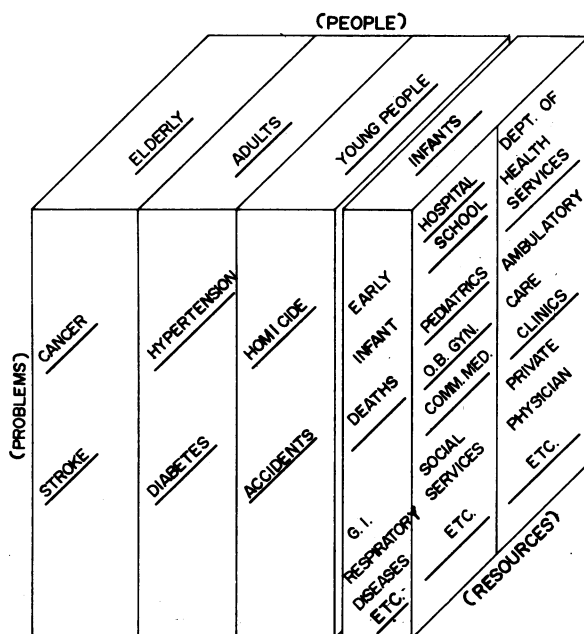


Chart 2.—Relationship among problems, resources and people to be served.

the technical knowledge or technical competence, and these, therefore, become limiting factors. Another constraint may be financial resources. With limited resources one tries to save as many lives as possible, rather than spend the same amount of money for problems which may save only a few lives.

The problems which contribute to excessive mortality present a real challenge. First of all it is immediately clear that the solutions do not all lie within the scope of medical care, but some do. For example, although our knowledge about the cause of hypertension is limited, there is perhaps still a great deal which can be done to reduce mortality by better medical care. At first it may appear futile to tackle the problems of excess deaths from homicide, yet it is possible that a significant number of the deaths may be prevented if high-quality emergency care is promptly available. Although we know socio-economic factors play an important role, we also know that excess deaths from the diseases of infancy may be decreased by improved maternal and infant care. The monitoring and thorough investigation of all infant deaths which occur in the community could possibly achieve a similar reduction in infant mortality as is achieved by the investigation and preventive conferences in the case of maternal mortality.

Narrowing the existing gap between the King Hospital Service Area and the West Valley Health District can best be achieved by the concerted effort of all services at the King Hospital and the Drew Postgraduate Medical School. It can best be achieved by an efficient organization of available resources so as to achieve the maximum benefit for the population served and, in so doing, reduce or eliminate existing problems.

For example, if one focuses on the infant population and recognizes the problem of excess infant deaths, then one can bring to bear the resources of the departments of Pediatrics, Obstetrics and Gynecology, and Community Medicine for dealing with the problem. If one decides to investigate all infant deaths, whether or not they occurred in the hospital, then this would require action on the part of the appropriate divisions of the newly-organized Los Angeles County Department of Health Care Services. An investigation of every death would involve both public and private sectors.

The approach to solving these community health problems is shown in a simplified diagram of interaction in the three dimensional model Chart 2 with the three axes representing people, problems and resources.

There is no cause of death that contributes to the excess which could not be affected by the application of our present knowledge and with commitment of adequate resources. The goal is not the elimination of death, but the achievement of a mortality status in the King Hospital Service Area equal to that which already exists in another section of Los Angeles County. To the extent that community health programs address themselves to these issues, they can be considered relevant; and the success achieved along these lines constitutes a reliable measure of the effectiveness of the health programs.

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